This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A wafer holder for retaining a ~~substrate~~ wafer within a processing chamber comprising:

an electrode; ~~and~~

one or more layers covering a portion of the wafer holder in contact with the wafer where at least one of the layers is compliant;

a temperature sensor for determining the temperature of the wafer; and

a computer which receives the wafer temperature information and determines the position of the wafer as the physical dimensions of the wafer change due to thermal expansion.

Claim 2 (original): The chuck of claim 1 wherein the compliant layer has a hardness between 25 and 100 Shore Hardness scale A.

Claim 3 (original): The chuck of claim 1 wherein the compliant layer is an insulator having a dielectric constant between 1 and 3.

Claim 4 (original): The chuck of claim 1 wherein the compliant layer can withstand 10% shear stress without exceeding the yield strength of the complaint layer material.

Claim 5 (original): The chuck of claim 1 wherein the electrode comprises at least one conductive material selected from the group consisting of: copper, nickel, chromium, aluminum, iron, and mixtures or alloys thereof.

Claim 6 (original): The chuck of claim 1 wherein the compliant layer comprises an insulative material selected from the group consisting of: fluorosilicones, polyamides, polyimides,

polyketones, polyetherketones, polysulfones, polycarbonates, polystyrenes, polyurethanes, nylons, polyvinylchlorides, polypropylenes, polyetherketones, polyethersulfones, polyethylene terephthalate, fluoroethylene propylene copolymers, cellulose, triacetates, silicones and rubbers, and combinations thereof.

Claim 7 (original): The chuck of claim 1 wherein the compliant layer is between 1 and 3 μm thick.

Claim 8 (currently amended): An apparatus for projecting patterned charged particles onto a ~~substrate~~ wafer comprising:

a processing chamber;

a charged particle source for generating a charged particle beam that impinges on the ~~substrate; and~~ wafer;

an electrostatic chuck comprising an electrode and one or more layers covering a portion of the wafer holder in contact with the wafer where at least one of the layers is compliant;

plurality of temperature sensors for determining the temperature of the wafer; and

a computer which receives the temperature information and determines the position of the wafer as the physical characteristics of the wafer change due to thermal expansion.

Claim 9 (original): The apparatus of claim 8 wherein the compliant layer has a hardness between 25 and 100 Shore Hardness scale A.

Claim 10 (currently amended): The apparatus of claim 8 further comprising:

a computer for calculating an estimated charged particle beam deflection to compensate for the actual deformation of the ~~substrate~~ wafer caused by the exposure of the ~~substrate~~ wafer to the charged particle beam, wherein the computer generates a deflection signal corresponding to the calculated deflection; and

a beam deflector for deflecting the charged particle beam in response to the deflection signal from the computer.

Claim 11 (original): The apparatus of claim 8 wherein the compliant layer is an insulator having a dielectric constant between 1 and 3.

Claim 12 (original): The apparatus of claim 8 wherein the compliant layer can withstand of 10% shear stress without exceeding the yield strength of the complaint layer material.

Claim 13 (original): The apparatus of claim 8 wherein the electrode is comprises an conductive material selected from the group consisting of: copper, nickel, chromium, aluminum, iron, and mixtures or alloys thereof.

Claim 14 (original): The apparatus of claim 8 wherein the compliant layer comprises an insulative material selected from the group consisting of: fluorosilicones, polyamides, polyimides, polyketones, polyetherketones, polysulfones, polycarbonates, polystyrenes, polyurethanes, nylons, polyvinylchlorides, polypropylenes, polyetherketones, polyethersulfones, polyethylene terephthalate, fluoroethaylene propylene copolymers, cellulose, triacetates, silicones and rubbers, and combinations thereof.

Claim 15 (currently amended): The apparatus of claim 8 further comprising:

a lithography mask positioned between the charged particle source and the ~~substrate~~ wafer; and

an electron sensor disposed within the processing chamber for detecting backscattered electrons emanating from the ~~substrate~~ wafer.

Claim 16 (currently amended): The apparatus of claim 8 further comprising a ~~substrate~~ wafer temperature sensor for measuring the temperature of the ~~substrate~~ wafer during processing and for sending a signal corresponding to the measured ~~substrate~~ wafer temperature to the computer,

Claim 17 (original): The apparatus of claim 8 wherein the compliant layer is between 1 and 10 μm thick.

Claim 18 (currently amended): The apparatus of claim 8 wherein localized heating of the ~~substrate~~ wafer due to exposure to the charged beam is between 1° C and 50° C.

Claim 19. (currently amended): A method for patterning a photoresist layer on a [substrate] wafer comprising the steps of:

forming a photoresist layer on the ~~substrate~~ wafer ;

positioning the ~~substrate~~ wafer on an electrostatic chuck having one or more layers covering a portion of the wafer chuck in contact with the wafer wherein at least one of the layers is compliant; and

exposing portions of the photoresist layer on the ~~substrate~~ wafer to a charged particle beam;

determining the temperature of the wafer; and

computing the estimated deformation of the wafer caused by the exposure of the wafer to the charged particle beam.

Claim 20 (original): The method of claim 19 further comprising the steps:

~~computing an estimated deformation of the substrate caused by exposure of the substrate to the charged particle beam; and~~

deflecting the particle beam in response to the estimated wafer deformation.

Claim 21 (original): The method of claim 19 wherein the compliant layer has a hardness between 25 and 75 Shore Hardness scale A.

Claim 22 (currently amended): The method of claim 19 further comprising:

using a charged particle beam to scan a first mark on a photo lithography mask onto a second mark on ~~said substrate~~ the wafer ;

detecting backscattered electrons from said scanning step;

determining the position of the ~~substrate~~ wafer using the detected backscattered electrons; and

deflecting the charged particle beam in response to the measured position of the ~~substrate~~ wafer.

Claim 23 (original): The method of claim 19 wherein the compliant layer is an insulator having a dielectric constant between 1 and 3.

Claim 24 (original): The method of claim 19 wherein the compliant layer comprises an insulative material selected from the group consisting of: fluorosilicones, polyamides, polyimides, polyketones, polyetherketones, polysulfones, polycarbonates, polystyrenes, polyurethanes, nylons, polyvinylchlorides, polypropylenes, polyetherketones, polyethersulfones, polyethylene terephthalate, fluoroethaylene propylene copolymers, cellulose, triacetates, silicones and rubbers, and combinations thereof.

Claim 25 (original): The method of claim 19 wherein the exposing step is performed using a SCALPEL lithography system.

Claims 26-28 (cancelled)

Claim 29 (currently amended): A method for holding a wafer on a chuck having an electrode and one or more layers covering a portion of the wafer holder in contact with the wafer wherein at least one of the layers is compliant comprising the steps of:

placing the wafer on one of the layers of the chuck; ~~and~~

energizing the electrode;

detecting the temperature of the wafer with a temperature sensor;

transmitting the detected wafer temperature to a computer; and

determining the position of the wafer as the wafer deforms due to thermal expansion.

Claim 30 (original): The method of claim 29 wherein the compliant layer has a hardness between 25 and 100 Shore Hardness scale A.

31 (original): The method of claim 29 wherein the compliant layer is an insulator having a dielectric constant between 1 and 3.

32 (original): The method of claim 29 wherein the compliant layer can withstand 10% shear stress without exceeding the yield strength of the complaint layer material.

33 (original): The method of claim 29 wherein the electrode comprises at least one conductive material selected from the group consisting of: copper, nickel, chromium, aluminum, iron, and mixtures or alloys thereof.

34 (original): The method of claim 29 wherein the compliant layer comprises an insulative material selected from the group consisting of: fluorosilicones, polyamides, polyimides, polyketones, polyetherketones, polysulfones, polycarbonates, polystyrenes, polyurethanes, nylons, polyvinylchlorides, polypropylenes, polyetherketones, polyethersulfones, polyethylene terephthalate, fluoroethylene propylene copolymers, cellulose, triacetates, silicones and rubbers, and combinations thereof.

35 (original): The method of claim 29 wherein the compliant layer is between 1 and 10 μm thick.

36 (currently amended): An apparatus for handling a ~~substrate~~ wafer for use in semiconductor processing comprising:

a wafer holder; ~~and~~

one or more layers covering a portion of the wafer holder in contact with the wafer where at least one of the layers is compliant;

a temperature sensor for determining the temperature of the wafer; and

a computer which receives wafer temperature information from the temperature sensor and determines the position of the wafer as the wafer deforms due to thermal expansion.

37 (original): The apparatus of claim 36 wherein the compliant layer has a hardness between 25 and 100 Shore Hardness scale A.

38 (original): The apparatus of claim 36 wherein the compliant layer can withstand 10% shear stress without exceeding the yield strength of the complaint layer material.

39 (original): The apparatus of claim 36 wherein the compliant layer comprises an insulative material selected from the group consisting of: fluorosilicones, polyamides, polyimides, polyketones, polyetherketones, polysulfones, polycarbonates, polystyrenes, polyurethanes, nylons, polyvinylchlorides, polypropylenes, polyetherketones, polyethersulfones, polyethylene terephthalate, fluoroethylene propylene copolymers, cellulose, triacetates, silicones and rubbers, and combinations thereof.

40 (original): The apparatus of claim 36 wherein the compliant layer is between 1 and 3 μm thick.